

Date: Mon, 13 Sep 93 04:30:26 PDT
From: Ham-Digital Mailing List and Newsgroup <ham-digital@ucsd.edu>
Errors-To: Ham-Digital-Errors@UCSD.Edu
Reply-To: Ham-Digital@UCSD.Edu
Precedence: Bulk
Subject: Ham-Digital Digest V93 #38
To: Ham-Digital

Ham-Digital Digest Mon, 13 Sep 93 Volume 93 : Issue 38

Today's Topics:

 2-m homebrew packet rig?
 Packet on a Unix box?
 ZL DATA NEWS 05 SEPT 1993

Send Replies or notes for publication to: <Ham-Digital@UCSD.Edu>
Send subscription requests to: <Ham-Digital-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Digital Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-digital".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 12 Sep 93 13:42:30 GMT
From: ogicse!emory!kd4nc!ke4zv!gary@network.ucsd.edu
Subject: 2-m homebrew packet rig?
To: ham-digital@ucsd.edu

In article <1993Sep9.221427.17808@news.uiowa.edu> drenze@icaen.uiowa.edu (Douglas J Renze) writes:

>I'd like to set up a dedicated radio for packet, but the cost of buying
>a 2-m rig (especially the one I'd like!) is prohibitive on my budget right
>now. So I was wondering, has anybody homebrewed a 2-m FM rig for use on
>packet? Has anybody heard of it being done? If so, please drop me a note!

Sure you can do it. You can find designs in the ARRL Handbook. But it's
almost always not cost effective. You can find used Micors and Exec IIs
at hamfests in the \$50-\$90 range all day long. You can't build a radio
of this quality for that amount of money. Finding the parts alone is an
exercise in futility. These radios use very good filters and inductors
made especially for Motorola and GE. They aren't commodity items.

Converting surplus is usually trivial for 1200 baud applications. That

they are crystal controlled is no drawback since you should stay put on your MAN frequency anyway so the routing software can find you. For 9600 baud, the Micor is fairly trivial to convert, the Exec takes a bit more effort. These are the kinds of radios that you get working and then tuck in a closet somewhere and forget. They'll work for years with no attention.

Gary

--

Gary Coffman KE4ZV	"If 10% is good enough	gatech!wa4mei!ke4zv!gary
Destructive Testing Systems	for Jesus, it's good	uunet!rsiatl!ke4zv!gary
534 Shannon Way	enough for Uncle Sam."	emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244	-Ray Stevens	

Date: Sat, 11 Sep 1993 14:45:14 GMT
From: psinntp!sunsvr6!jdc@uunet.uu.net
Subject: Packet on a Unix box?
To: ham-digital@ucsd.edu

In article <930906.204449.6G2.rusnews.w165w@mulvey.com>,

Rich Mulvey <rich@mulvey.com> wrote:

>drenze@icaen.uiowa.edu (Douglas J Renze) writes:

>

>> Has anybody out there successfully run packet (specifically: TCP/IP) on a
>> Unix box? Can the standard TCP/IP package be used, or must a Unix version
>> of the KA9Q TCP/IP package be used and does such a beast exist?

>>

> Yup, you can. Look for WAMPES on Archie - I know that it has been ported
> to Linux, and probably most other Unices, as well.

>

>- Rich

>

>--

>Rich Mulvey	Amateur Radio: N2VDS	787 Elmwood Terrace
>rich@mulvey.com		Rochester, NY 14620

How about Unix software for Baycom modems?

73...Jim
N2VNO

Date: Mon, 06 Sep 93 10:41:11 GMT
From: tribune.usask.ca!kakwa.ucs.ualberta.ca!alberta!nebulus!adec23!
usenet@decwrl.dec.com

Subject: ZL DATA NEWS 05 SEPT 1993
To: ham-digital@ucsd.edu

Date: (null)
From: (null)
CHRISTCHURCH JOTTINGS

----- SENT BY ZL3CS

AT A RECENT SPECIAL GENERAL BRANCH MEETING OF 05, A GENUINE ATTEMPT WAS MADE TO CLEAR THE WAY FOR ACCEPTING CLUB ASSOCIATES. IN THE CHAIR FOR THIS SPECIAL OCCASION RON, ZL3VX HANDLED A DIFFICULT TASK ABLY AND SMOOTHLY. A DRAFT OF A NEW CONSTITUTION FOR THE CLUB WAS FINALLY COMPLETED SHORTLY AFTER 10 PM. A GENERAL MONTHLY MEETING FOLLOWED BY A WELCOME CHEERFUL CUPPA COMPLETED THE EVENING. HAMMERING A NEW CLUB CONSTITUTION INTO SHAPE, IS NO EASY TASK AND THE MAIN BLACKSMITHS, ZL3VX AND ZL3FU, MUST BE COMPLIMENTED ON PRESENTING A DRAFT COPY, WHICH REQUIRED ONLY FINE TUNING TO BE ACCEPTABLE TO SOME 30 PLUS CRITICAL, INTERESTED MEMBERS. THE ATTENDANCE WAS DOWN BY COMPARISON TO THE USUAL NUMBERS DRAWN BY THE EVENING TOPICS. A FURTHER REPORT CONTAINING SPECIFIC INFORMATION ON THE CONSTITUTION UP-GRADE SHOULD BE AVAILABLE, AT A ROUGH GUESS, ABOUT CHRISTMAS TIME.
73 DE GUTHRIE.

PACKET CHANGE TO 80 METRES

----- from ZL1AQ

WITH CONDITIONS SO POOR ON 40 METRES A CHANGE TO 80 METRE PACKET WOULD SEEM TO BE THE RIGHT MOVE. RECENTLY SELCAL (BAUDOT) WAS SHIFTED FROM 40M TO 80M AND THE RESULT HAS BEEN FAR BEYOND EXPECTATIONS. PACKET ON 80 METRES COULD BE RUN BETWEEN 3630 AND 3640, TO SUPPORT THE SUGGESTION ON PAGE 97 OF THE CALL BOOK. SOME OPERATORS MAY WISH TO USE 3635.5 OR 3638.9-A SIMILAR PATTERN TO 40M. TO GET THE CHANGE OFF THE GROUND IT MAY SAVE PERSONAL TIME IF CALLS ARE MADE RIGHT ON THE HOUR, ESPECIALLY 8 O'CLOCK ON.

73 DE GORDON ZL1AQ.

WHERE ELECTRONS GO

----- FROM ZL1ACS

(DEDICATED TO THE NEWCOMERS GETTING TO GRIPS WITH RADIO THEORY.)

THE PROCESSION OF ELECTRONS PAST ANY GIVEN SPOT,
IS CALLED ELECTRIC CURRENT AND IT MAKES RESISTORS HOT.

IT ALSO HAS MAGNETIC FIELDS WITHIN IT AND AROUND,
 AND WE ALWAYS SAY THAT CURRENT GOES FROM POSITIVE TO GROUND.
 BUT NOW WE KNOW THERE'S PLENTY OF ELECTRONS IN THE EARTH,
 SO POSITIVE POTENTIAL MERELY MEANS THERE'S A DEARTH,
 AND ELECTRON FLOW IS OPPOSITE - WITH THIS WE HAVE TO LIVE.
 SO WHEN YOU PRESS YOUR BUTTON OR RATTLE ON YOUR KEY,
 AND ENERGISE YOUR MASSIVE QUAD OR LONG WIRE TO A TREE -
 THE MOVEMENT OF ELECTRONS PAST ANY GIVEN SPOT,
 IS WHAT GIVES YOU YOUR POWER - BUT YOU NEED NOT FEEL A CLOT
 IF YOU THINK THE CURRENT'S FLOWING DOWN FROM POSITIVE TO GROUND,
 OR ELECTRONS GO OFF SIDEWAYS AND THEN SPIN ROUND AND ROUND -
 SO LONG AS YOU CAN TUNE YOUR RIG FOR SIGNALS PURE AND TRUE,
 AND SOMEONE GIVES AN ANSWER EVERY TIME YOU CALL CQ.
 73 DE KEN ZL1ACS

(continued next page)

--- End of message #7345 to NEWS from ZL1AVY ---

Date: (null)
 From: (null)

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TRANSMITTED BY ZL1AVY AUCKLAND SEPT 05 1993

THIS IS A WEEKLY UNOFFICIAL BULLETIN OF NEWS AND VIEWS FROM ZL
 AMATEURS. IT DOES NOT REPRESENT AN OFFICIAL VIEWPOINT, AND ALL
 OPINIONS ARE THOSE OF THE CONTRIBUTOR.

DATA THROUGHPUT ON PACKET - a difficult concept
 ----- from ZL1DDL

In some recent discussions with fellow packeteers I had to realize
 that there is a lot of talking about 'throughput' of certain systems,
 or under certain channel situations. But do we really know what we
 mean when we use the word ?.

Let's start with a simple example : you're logged into a BBS on a direct user access frequency. Let us also assume that you're alone on the frequency (except for the BBS) and that your link is so good that no packet gets lost due to noise. Now imagine that you're issuing a 'R 1234' command to download the bulletin number 1234. What will happen ?

First (BayCom users and some others can see this on their monitor screen), your station will send an info packet to the BBS. It will consist of the 'R 1234' the data, which accounts for six bytes, and a header of about 20 bytes. This is the packet's information content. So we have about 26 bytes, eight bits each, which gives us around 208 bits. Ready for transmission ? Not quite. Before the frame can be sent out, another process takes place: bit stuffing.

Why that ? Well, the receiving TNC needs some means of actually synchronizing itself with your baudrate, which may differ slightly from 1200 Hz. For this, it needs a regular feature in your bit stream. In our case, that's provided by a zero bit which is inserted after each five bits. 'One' bits are always transmitted as a continuous tone while a 'zero' is denoted by a change between the two tones. This way having a regular 'zero' transition occurring, the TNC receiving the packet can synchronize itself with the transmission.

To account for those extra bits, we need to add another 20 per cent to our bits, which leaves us with about 250 bits in the frame. Luckily, this 'packing' process takes almost no time in a modern computer or TNC, so we'll neglect this delay for a moment. Transmitted at 1200 Bd the packet itself will take 208 ms to get transmitted. But stop - that's not all: before transmitting, your TNC will wait about 100 - 300 ms for a clear channel (assuming that the BBS has almost zero TX-RX switching time), and only then it will key up. Most packeteers use DWAIT to control this.

Hm, we're still not on air. There is this dreadful other parameter, called TXDELAY. With a modern rig and a software squelch on both sides this should be no longer than 200 ms, to cover the time your transmitter needs to key up. Bingo: our transmission has taken place. It has taken us over 700 ms to transfer six bytes of data (well, make that seven with a RETURN at the end...). This is a bit rate of just about 80 bits or 10 bytes per second. Not a good through-put, one might say. Actually, the figure is almost meaningless - what you're really interested in is how long it takes to get a reply from the BBS:

(to be continued)

--- End of message #7344 to NEWS from ZL1AVY ---

Date: (null)
From: (null)
BAYCOM MODEMS - A WARNING
----- from ZL1DDL

It has come to our attention that some people have been designing modems for use with the BayCom software which use an MAX232 level converter instead of the 74HC04 or 74HC14 inverter chips.

One of these designs appeared in a recent article in 'Amateur Radio' and, as far as we understand, also in another VK magazine.

The BayCom team in Germany conducted experiments on prototype modems with a MAX232 a long time ago, finding that such modems would not run on about 20 % of all machines that a standard BayCom modem would run on. The reason for this is that in a worst case situation, the current drawn from the RS232 interface by the MAX232 designs can be as much as 200% and more than the current consumption of the standard design. Even in a best case situation, the MAX232 circuits will draw significantly more current than the standard modem circuit.

Therefore, the MAX232 design was abandoned in favour of the HCMOS chips. The name of the game was to construct a circuit which would work on the highest possible number of IBM compatible computers. No problems have been reported so far with the transistor circuit used to transform the incoming data for RS232 use.

We therefore recommend that homebrewers should not use MAX232 chips in their modems. Users who found that the MAX232 variety does not work for them should consider using an external power supply for the modem to overcome this problem.

73, Ulrich ZL1DDL
(approved by Johannes Kneip DG3RBU)

COMING UP NEXT WEEK : Part 2 of the series on packet throughput, a story on interfacing by Henry ZL1AAN, News from the regions, TPK and some hints and kinks on it's use.

Thanks to the contributors this week: ZL1DDL,ZL1AQ,ZL1ACS and ZL3CS. That concludes this edition. Items of general interest to data mode users are solicited for future newsletters. Your contribution may be sent via post, RTTY or packet to Alan ZL1-AMW. This broadcast is normally sent at 0930 and 1900 hrs each Sunday on 3545 kHz , first

in 75 B Baudot then repeated in Amtor Mode B (FEC).

73 to all from your temporary editor Doug ZL1AVY
107a New Windsor Rd. Avondale, Auckland.

--- End of message #7346 to NEWS from ZL1AVY ---

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carl@codewks.nacjack.gen.nz (Carl Trommel)
The BBS Works -- +64 9 630 7739 NZL New Zealand's Oldest BBS

End of Ham-Digital Digest V93 #38
